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YANAGIDATE, Ritsuko
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KOIZUKA, Nobuya
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<213> Artificial

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<400> 11
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<400> 12
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<211> 3306
<212> DNA
<213> Raphanus sativus

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taataggtta gattttggtt aggtctttct aattagtatg gagattctcg attccttctc 180

attgcagtgt ggtatgtcca actcattgtt tatgtacata tccaatttag ttttgagtca 240

aatgtttagt tacttaagag ttgaatgaaa taggggatga tattgatggc caaggttctc 300

ccaaagtaaa taactttgtt tatattttaa gttagcttat aacatcaata aaaatgtcat 360

taactggttc aataaaaatg tcattaactg gttcctctaa tataattatt taacacacct 420

ggctgttgat aaatttttat gatcgtttaa taattttaga agtggatagt ctgtaaatgg 480

tctttgattg gtcgtcttga tttttaaaag tggactaaac aagaaggctt agtaataaat 540

actgaaccgg aactctactg gtttcaatag ctcggtttat caatttctct cggctctggg 600

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aaatctgaac cggaaattgt ataattcaaa ctgaaccggt tcttgtaaaa caaatggaac 720

ccgtttgtac tttatctctc gtttattttc tcagtcacga gtttttttta gagatcgacg 780

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tctggccaag gcaagcggag agagttgcga agcaggtttt ggaggagaga gtttgaagct 960

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taagaaggga gatactgtgt ctgcactgaa tctgctgagg aagatggagg aggtgagcca 1560

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tatttttat ataaacaaga atgtatacat tcttttgtgt gtagcttcag attgatgata 2940

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gaatgatcaa agattttctt ctgtttgcgc agcagagctt caatgtcatt ttgtttctgc 3060

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<210> 16
<211> 2064
<212> DNA
<213> Raphanus sativus

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gcaggttttg gaggagagag tttgaagctg caaagtgggt ttcatgaaat caaaggttta 180

gaggatgcga ttgatttgtt cagtgacatg cttcgatctc gtcctttacc ttctgtggtt 240

gatttctgta aattgatggg tgtggtggtg agaatggaac gcccggatct tgtgatttct 300

ctctatcaga agatggaaag gaaacagatt cgatgtgata tatacagctt caatattctg 360

ataaaatgtt tctgcagctg ctctaagctc ccctttgctt tgtctacatt tggtaagctc 420

accaagcttg gactccaccc tgatgttgtt accttcacca ccctgctcca cggattgtgc 480

gtggaagata gggtttctga agctttgaat ttgtttcatc aaatgtttga aacgacatgt 540

aggcccaatg tcgtaacctt caccactttg atgaacggtc tttgccgcga gggtagaatt 600

gtcgaagccg tagctctgct tgatcggatg atggaagatg gtctccagcc tacccagatt 660

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ctgctgagga agatggagga ggtgagccac atcataccca atgttgtaat ctatagtgca 780

atcattgata gcctttgtaa agacggacgt catagcgatg cacaaaatct tttcactgaa 840

atgcaagaga aaggaatctt tcccgattta tttacctaca acagtatgat agttggtttt 900

tgtagctctg gtagatggag cgacgcggag cagttgttgc aagaaatgtt agaaaggaag 960

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gagatgattt caagtggtgt gtatcctgat accattacca tccgcaatat gctgactggt 1980

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<210> 17
<211> 688
<212> PRT
<213> Raphanus sativus

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<222> (688)..(688)
<223> Xaa can be any amino acid

<220>
<221> misc_feature
<222> (688)..(688)
<223> Xaa can be any naturally occurring amino acid

<400> 17

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35 40 45

Lys Leu Gln Ser Gly Phe His Glu Ile Lys Gly Leu Glu Asp Ala Ile
50 55 60

Asp Leu Phe Ser Asp Met Leu Arg Ser Arg Pro Leu Pro Ser Val Val
65 70 75 80

Asp Phe Cys Lys Leu Met Gly Val Val Val Arg Met Glu Arg Pro Asp
85 90 95

Leu Val Ile Ser Leu Tyr Gln Lys Met Glu Arg Lys Gln Ile Arg Cys
100 105 110

Asp Ile Tyr Ser Phe Asn Ile Leu Ile Lys Cys Phe Cys Ser Cys Ser
115 120 125

Lys Leu Pro Phe Ala Leu Ser Thr Phe Gly Lys Leu Thr Lys Leu Gly
130 135 140

Leu His Pro Asp Val Val Thr Phe Thr Thr Leu Leu His Gly Leu Cys
145 150 155 160

Val Glu Asp Arg Val Ser Glu Ala Leu Asn Leu Phe His Gln Met Phe
165 170 175

Glu Thr Thr Cys Arg Pro Asn Val Val Thr Phe Thr Thr Leu Met Asn
180 185 190

Gly Leu Cys Arg Glu Gly Arg Ile Val Glu Ala Val Ala Leu Leu Asp
195 200 205

Arg Met Met Glu Asp Gly Leu Gln Pro Thr Gln Ile Thr Tyr Gly Thr

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    210                 215                 220

Ile Val Asp Gly Met Cys Lys Lys Gly Asp Thr Val Ser Ala Leu Asn
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Leu Leu Arg Lys Met Glu Glu Val Ser His Ile Ile Pro Asn Val Val
                245                 250                 255

Ile Tyr Ser Ala Ile Ile Asp Ser Leu Cys Lys Asp Gly Arg His Ser
            260                 265                 270

Asp Ala Gln Asn Leu Phe Thr Glu Met Gln Glu Lys Gly Ile Phe Pro
        275                 280                 285

Asp Leu Phe Thr Tyr Asn Ser Met Ile Val Gly Phe Cys Ser Ser Gly
    290                 295                 300

Arg Trp Ser Asp Ala Glu Gln Leu Leu Gln Glu Met Leu Glu Arg Lys
305                 310                 315                 320

Ile Ser Pro Asp Val Val Thr Tyr Asn Ala Leu Ile Asn Ala Phe Val
                325                 330                 335

Lys Glu Gly Lys Phe Phe Glu Ala Glu Glu Leu Tyr Asp Glu Met Leu
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Pro Arg Gly Ile Ile Pro Asn Thr Ile Thr Tyr Ser Ser Met Ile Asp
        355                 360                 365

Gly Phe Cys Lys Gln Asn Arg Leu Asp Ala Ala Glu His Met Phe Tyr
    370                 375                 380

Leu Met Ala Thr Lys Gly Cys Ser Pro Asn Leu Ile Thr Phe Asn Thr
385                 390                 395                 400

Leu Ile Asp Gly Tyr Cys Gly Ala Lys Arg Ile Asp Asp Gly Met Glu
                405                 410                 415

Leu Leu His Glu Met Thr Glu Thr Gly Leu Val Ala Asp Thr Thr Thr
            420                 425                 430

Tyr Asn Thr Leu Ile His Gly Phe Tyr Leu Val Gly Asp Leu Asn Ala
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Ala Leu Asp Leu Leu Gln Glu Met Ile Ser Ser Gly Leu Cys Pro Asp
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Ile Val Thr Cys Asp Thr Leu Leu Asp Gly Leu Cys Asp Asn Gly Lys
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Leu Lys Asp Ala Leu Glu Met Phe Lys Val Met Gln Lys Ser Lys Lys
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Asp Leu Asp Ala Ser His Pro Phe Asn Gly Val Glu Pro Asp Val Gln
            500                 505                 510

Thr Tyr Asn Ile Leu Ile Ser Gly Leu Ile Asn Glu Gly Lys Phe Leu
        515                 520                 525

Glu Ala Glu Glu Leu Tyr Glu Glu Met Pro His Arg Gly Ile Val Pro
    530                 535                 540

Asp Thr Ile Thr Tyr Ser Ser Met Ile Asp Gly Leu Cys Lys Gln Ser
545                 550                 555                 560

Arg Leu Asp Glu Ala Thr Gln Met Phe Asp Ser Met Gly Ser Lys Ser
                565                 570                 575

Phe Ser Pro Asn Val Val Thr Phe Thr Thr Leu Ile Asn Gly Tyr Cys
            580                 585                 590

Lys Ala Gly Arg Val Asp Asp Gly Leu Glu Leu Phe Cys Glu Met Gly
        595                 600                 605

Arg Arg Gly Ile Val Ala Asn Ala Ile Thr Tyr Ile Thr Leu Ile Cys
    610                 615                 620

Gly Phe Arg Lys Val Gly Asn Ile Asn Gly Ala Leu Asp Ile Phe Gln
625                 630                 635                 640

Glu Met Ile Ser Ser Gly Val Tyr Pro Asp Thr Ile Thr Ile Arg Asn
                645                 650                 655

Met Leu Thr Gly Leu Trp Ser Lys Glu Glu Leu Lys Arg Ala Val Ala
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Met Leu Glu Lys Leu Gln Met Ser Met Asp Leu Ser Phe Gly Gly Xaa
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<211> 2073
<212> DNA

<213> Raphanus sativus

<400> 18

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aagctcacca agcttggact ccaccctgat gttgttacct tcaccaccct tctccacgga 480

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rcatgtaggc ccaatgtcgt aaccttcacc actttgatga acggtctttg ccgcgagggt 600

agaattgtcg aagccgtagc tctacttgat cggatgatgg aagatggtct ccagcctacc 660

cagattactt atggaacaat cgtagatggg atgtgtaaga agggagatac tgtgtctgca 720

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<210> 19
<211> 691
<212> PRT
<213> Raphanus sativus

<220>
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<222> (691)..(691)
<223> Xaa can be any naturally occurring amino acid

<220>
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<400> 19

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20 25 30

Lys Ala Ser Arg Asp Gly Glu Ser Cys Glu Ala Gly Phe Gly Gly Glu
35 40 45

Ser Leu Lys Leu Gln Ser Gly Phe His Glu Ile Lys Gly Leu Glu Asp
50 55 60

Ala Ile Asp Leu Phe Ser Asp Met Leu Arg Ser Arg Pro Leu Pro Ser
65 70 75 80

Val Val Asp Phe Cys Lys Leu Met Gly Val Val Val Arg Met Lys Arg
85 90 95

Pro Asp Val Val Ile Ser Leu His Lys Lys Met Glu Met Arg Arg Ile
100 105 110

Pro Cys Asp Ala Tyr Ser Phe Asn Ile Leu Ile Lys Cys Phe Cys Ser
115 120 125

Cys Ser Lys Leu Pro Phe Ala Leu Ser Thr Phe Gly Lys Leu Thr Lys
130 135 140

Leu Gly Leu His Pro Asp Val Val Thr Phe Thr Thr Leu Leu His Gly
145 150 155 160

Leu Cys Val Glu Asn Arg Gly Ser Glu Ala Leu Asn Leu Phe His Gln
165 170 175

Met Phe Glu Thr Thr Cys Arg Pro Asn Val Val Thr Phe Thr Thr Leu
180 185 190

Met Asn Gly Leu Cys Arg Glu Gly Arg Ile Val Glu Ala Val Ala Leu
195 200 205

Leu Asp Arg Met Met Glu Asp Gly Leu Gln Pro Thr Gln Ile Thr Tyr
210 215 220

Gly Thr Ile Val Asp Gly Met Cys Lys Lys Gly Asp Thr Val Ser Ala
225 230 235 240

Leu Asn Leu Leu Arg Lys Met Glu Glu Val Ser His Ile Ile Pro Asn
245 250 255

Val Val Ile Tyr Ser Ala Ile Ile Asp Ser Leu Cys Lys Asp Gly Arg
260 265 270

His Ser Asp Ser Gln Asn Leu Phe Thr Glu Met Gln Glu Lys Gly Ile
275 280 285

Phe Pro Asp Leu Phe Thr Tyr Asn Cys Met Ile Asn Gly Phe Cys Ser
290 295 300

Ser Gly Arg Trp Ile Asp Ala Glu Gln Leu Leu Gln Glu Met Leu Glu
305 310 315 320

Arg Lys Ile Ser Pro Asp Val Val Thr Tyr Asn Ala Leu Ile Asn Ala
325 330 335

Phe Val Lys Glu Gly Lys Phe Phe Glu Ala Glu Glu Leu Tyr Asp Glu
340 345 350

Met Leu Pro Arg Gly Ile Ile Pro Asn Thr Ile Thr Tyr Ser Ser Met
355 360 365

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Ile Asp Gly Phe Cys Lys Gln Asn Arg Leu Asp Ala Ala Glu His Met
    370                 375                 380

Phe Tyr Leu Met Pro Thr Lys Gly Cys Ser Pro Asp Val Phe Thr Phe
385                 390                 395                 400

Asn Thr Leu Ile Asp Gly Tyr Arg Gly Ala Lys Arg Ile Asp Asp Gly
                405                 410                 415

Met Glu Leu Leu His Glu Met Thr Glu Ala Gly Leu Val Ala Asn Thr
            420                 425                 430

Val Thr Tyr Asn Thr Leu Ile His Gly Phe Cys Gln Val Gly Asp Leu
        435                 440                 445

Thr Ala Ala Leu Asp Leu Leu His Glu Met Ile Ser Ser Gly Val Cys
    450                 455                 460

Pro Asn Val Val Thr Cys Ser Thr Leu Leu Asp Gly Leu Cys Asp Asn
465                 470                 475                 480

Gly Lys Leu Lys Asp Ala Trp Glu Leu Phe Lys Val Met Gln Lys Ser
                485                 490                 495

Lys Met Asp Leu Asp Ala Ser His Pro Phe Asn Gly Val Glu Pro Asp
            500                 505                 510

Val Gln Thr Tyr Asn Ile Leu Ile Ser Gly Leu Ile Asn Glu Gly Lys
        515                 520                 525

Phe Leu Glu Ala Glu Glu Leu Tyr Lys Glu Met Pro His Arg Gly Ile
    530                 535                 540

Val Pro Asp Thr Ile Thr Tyr Ser Ser Met Ile Asp Gly Leu Cys Lys
545                 550                 555                 560

Gln Ser Arg Leu Asp Glu Ala Thr Gln Met Phe Asp Ser Met Gly Ser
                565                 570                 575

Lys Ser Phe Ser Pro Asn Val Val Thr Phe Thr Thr Leu Ile Asp Gly
            580                 585                 590

Tyr Cys Lys Ala Gly Arg Val Asp Asp Gly Leu Glu Leu Phe Cys Glu
        595                 600                 605
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Met Gly Arg Arg Gly Ile Val Ala Asn Thr Ile Thr Tyr Ile Thr Leu
610 615 620

Ile Arg Gly Phe Arg Asn Val Gly Asn Ile Asn Gly Ala Leu Asp Ile
625 630 635 640

Phe Gln Glu Met Ile Ser Ser Gly Val Tyr Pro Gly Ile Ile Thr Ile
645 650 655

Arg Ser Met Leu Thr Gly Leu Trp Ser Lys Glu Glu Leu Lys Arg Thr
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Val Ala Met Leu Glu Glu Leu Gln Met Ser Val Gly Tyr Gln Leu Glu
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Asp Glu Xaa
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<211> 516
<212> DNA
<213> Raphanus raphanistrum

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gtttcatcaa atgtttgaaa cgacatgtag gccgaacatc ataacgttta ccacgctgat 300

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<210> 21
<211> 171
<212> PRT
<213> Raphanus raphanistrum

<400> 21

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Ser Leu Lys Leu Gln Ser Gly Phe His Glu Ile Lys Gly Leu Glu Asp
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Ala Ile Asp Leu Phe Ser Asp Met Leu Arg Ser Arg Pro Leu Pro Ser
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Val Val Asp Phe Cys Lys Leu Met Gly Val Val Val Arg Met Xaa Arg
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Pro Asp Xaa Val Ile Ser Leu Xaa Xaa Lys Met Glu Xaa Xaa Xaa Ile
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Xaa Cys Asp Xaa Tyr Ser Phe Asn Ile Leu Ile Lys Cys Phe Cys Ser
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Cys Ser Lys Leu Pro Phe Ala Leu Ser Thr Phe Gly Lys Xaa Thr Lys
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Leu Gly Leu His Pro Asp Val Xaa Thr Phe Xaa Thr Leu Leu His Gly
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Leu Cys Xaa Xaa Xaa Arg Xaa Ser Glu Ala Leu Xaa Xaa Phe His Gln
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Met Phe Glu Thr Thr Cys Arg Pro Asn Xaa Xaa Thr Phe Thr Thr Leu
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Gly Thr Ile Val Asp Gly Met Cys Lys Xaa Gly Asp Thr Val Ser Ala
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Leu Asn Leu Leu Arg Lys Met Glu Glu Xaa Ser His Ile Xaa Pro Asn
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Val Val Ile Tyr Ser Ala Ile Ile Asp Ser Leu Cys Lys Asp Gly Arg
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His Ser Asp Xaa Gln Asn Leu Phe Thr Glu Met Gln Glu Lys Gly Ile
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Phe Pro Asp Leu Phe Thr Tyr Asn Xaa Met Ile Xaa Gly Phe Cys Ser
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Ser Gly Arg Trp Xaa Asp Ala Glu Gln Leu Leu Gln Glu Met Leu Glu
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Arg Lys Ile Ser Pro Asp Val Val Thr Tyr Asn Ala Leu Ile Asn Ala
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Phe Val Lys Glu Gly Lys Phe Phe Glu Ala Glu Glu Leu Tyr Asp Glu
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Ile Asp Gly Phe Cys Lys Gln Asn Arg Leu Asp Ala Ala Glu His Met
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Asn Thr Leu Ile Asp Gly Tyr Xaa Gly Ala Lys Arg Ile Asp Asp Gly
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Met Glu Leu Leu His Glu Met Thr Glu Xaa Gly Leu Val Ala Xaa Thr
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Xaa Thr Tyr Asn Thr Leu Ile His Gly Phe Xaa Xaa Val Gly Asp Leu
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Pro Xaa Xaa Val Thr Cys Xaa Thr Leu Leu Asp Gly Leu Cys Asp Asn
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Gly Lys Leu Lys Asp Ala Xaa Glu Xaa Phe Lys Val Met Gln Lys Ser

485 490 495

Lys Xaa Asp Leu Asp Ala Ser His Pro Phe Asn Gly Val Glu Pro Asp
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Val Gln Thr Tyr Asn Ile Leu Ile Ser Gly Leu Ile Asn Glu Gly Lys
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Phe Leu Glu Ala Glu Glu Leu Tyr Xaa Glu Met Pro His Arg Gly Ile
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Val Pro Asp Thr Ile Thr Tyr Ser Ser Met Ile Asp Gly Leu Cys Lys
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Gln Ser Arg Leu Asp Glu Ala Thr Gln Met Phe Asp Ser Met Gly Ser
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Lys Ser Phe Ser Pro Asn Val Val Thr Phe Thr Thr Leu Ile Xaa Gly
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Tyr Cys Lys Ala Gly Arg Val Asp Asp Gly Leu Glu Leu Phe Cys Glu
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Ile Xaa Gly Phe Arg Xaa Val Gly Asn Ile Asn Gly Ala Leu Asp Ile
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Phe Gln Glu Met Ile Ser Ser Gly Val Tyr Pro Xaa Xaa Ile Thr Ile
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Arg Xaa Met Leu Thr Gly Leu Trp Ser Lys Glu Glu Leu Lys Arg Xaa
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Lys Ala Ser Xaa Xaa Gly Glu Ser Cys Glu Ala Gly Phe Gly Gly Glu
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Ser Leu Lys Leu Gln Ser Gly Phe His Glu Ile Lys Gly Leu Glu Asp
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Ala Ile Asp Leu Phe Ser Asp Met Leu Arg Ser Arg Pro Leu Pro Ser
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Val Val Asp Phe Cys Lys Leu Met Gly Val Val Val Arg Met Xaa Arg
                85                  90                  95

Pro Asp Xaa Val Ile Ser Leu Xaa Xaa Lys Met Glu Xaa Xaa Xaa Ile
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Xaa Cys Asp Xaa Tyr Ser Phe Asn Ile Leu Ile Lys Cys Phe Cys Ser
        115                 120                 125

Cys Ser Lys Leu Pro Phe Ala Leu Ser Thr Phe Gly Lys Xaa Thr Lys
    130                 135                 140

Leu Gly Leu His Pro Asp Val Val Thr Phe Thr Thr Leu Leu His Gly
145                 150                 155                 160

Leu Cys Val Glu Xaa Arg Xaa Ser Glu Ala Leu Xaa Xaa Phe His Gln
                165                 170                 175

Met Phe Glu Thr Thr Cys Arg Pro Asn Val Val Thr Phe Thr Thr Leu
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Met Asn Gly Leu Cys Arg Glu Gly Arg Ile Val Glu Ala Val Ala Leu
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Leu Asp Arg Met Met Glu Asp Gly Leu Gln Pro Thr Gln Ile Thr Tyr
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Gly Thr Ile Val Asp Gly Met Cys Lys Lys Gly Asp Thr Val Ser Ala
225 230 235 240

Leu Asn Leu Leu Arg Lys Met Glu Glu Val Ser His Ile Ile Pro Asn
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Val Val Ile Tyr Ser Ala Ile Ile Asp Ser Leu Cys Lys Asp Gly Arg
260 265 270

His Ser Asp Xaa Gln Asn Leu Phe Thr Glu Met Gln Glu Lys Gly Ile
275 280 285

Phe Pro Asp Leu Phe Thr Tyr Asn Xaa Met Ile Xaa Gly Phe Cys Ser
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Ser Gly Arg Trp Xaa Asp Ala Glu Gln Leu Leu Gln Glu Met Leu Glu
305 310 315 320

Arg Lys Ile Ser Pro Asp Val Val Thr Tyr Asn Ala Leu Ile Asn Ala
325 330 335

Phe Val Lys Glu Gly Lys Phe Phe Glu Ala Glu Glu Leu Tyr Asp Glu
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Met Leu Pro Arg Gly Ile Ile Pro Asn Thr Ile Thr Tyr Ser Ser Met
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Ile Asp Gly Phe Cys Lys Gln Asn Arg Leu Asp Ala Ala Glu His Met
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Phe Tyr Leu Met Xaa Thr Lys Gly Cys Ser Pro Xaa Xaa Xaa Thr Phe
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Asn Thr Leu Ile Asp Gly Tyr Xaa Gly Ala Lys Arg Ile Asp Asp Gly
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Xaa Ala Ala Leu Asp Leu Leu Xaa Glu Met Ile Ser Ser Gly Xaa Cys

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Pro Xaa Xaa Val Thr Cys Xaa Thr Leu Leu Asp Gly Leu Cys Asp Asn
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Gly Lys Leu Lys Asp Ala Xaa Glu Xaa Phe Lys Val Met Gln Lys Ser
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Lys Xaa Asp Leu Asp Ala Ser His Pro Phe Asn Gly Val Glu Pro Asp
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Val Gln Thr Tyr Asn Ile Leu Ile Ser Gly Leu Ile Asn Glu Gly Lys
        515                 520                 525

Phe Leu Glu Ala Glu Glu Leu Tyr Xaa Glu Met Pro His Arg Gly Ile
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Val Pro Asp Thr Ile Thr Tyr Ser Ser Met Ile Asp Gly Leu Cys Lys
545                 550                 555                 560

Gln Ser Arg Leu Asp Glu Ala Thr Gln Met Phe Asp Ser Met Gly Ser
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Lys Ser Phe Ser Pro Asn Val Val Thr Phe Thr Thr Leu Ile Xaa Gly
            580                 585                 590

Tyr Cys Lys Ala Gly Arg Val Asp Asp Gly Leu Glu Leu Phe Cys Glu
        595                 600                 605

Met Gly Arg Arg Gly Ile Val Ala Asn Xaa Ile Thr Tyr Ile Thr Leu
    610                 615                 620

Ile Xaa Gly Phe Arg Xaa Val Gly Asn Ile Asn Gly Ala Leu Asp Ile
625                 630                 635                 640

Phe Gln Glu Met Ile Ser Ser Gly Val Tyr Pro Xaa Xaa Ile Thr Ile
                645                 650                 655

Arg Xaa Met Leu Thr Gly Leu Trp Ser Lys Glu Glu Leu Lys Arg Xaa
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Val Ala Met Leu Glu Xaa Leu Gln Met Ser Xaa Xaa Xaa Xaa Xaa Xaa
        675                 680                 685

Xaa Xaa
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<220>
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<223> Met or Leu

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20 25 30

Lys Ala Ser Gly Glu Ser Cys Glu Ala Gly Phe Gly Gly Glu Ser Leu
35 40 45

Lys Leu Gln Ser Gly Phe His Glu Ile Lys Gly Leu Glu Asp Ala Ile
50 55 60

Asp Leu Phe Ser Asp Met Leu Arg Ser Arg Pro Leu Pro Ser Val Val
65 70 75 80

Asp Phe Cys Lys Leu Met Gly Val Val Val Arg Met Glu Arg Pro Asp
85 90 95

Leu Val Ile Ser Leu Tyr Gln Lys Met Glu Arg Lys Gln Ile Xaa Cys
100 105 110

Asp Xaa Tyr Ser Phe Asn Ile Leu Ile Lys Cys Phe Cys Ser Cys Ser
115 120 125

Lys Leu Pro Phe Ala Leu Ser Thr Phe Gly Lys Xaa Thr Lys Leu Gly
130 135 140

Leu His Pro Asp Val Xaa Thr Phe Xaa Thr Leu Leu His Gly Leu Cys
145 150 155 160

Xaa Xaa Xaa Arg Val Ser Glu Ala Leu Xaa Xaa Phe His Gln Met Phe
165 170 175

Glu Thr Thr Cys Arg Pro Asn Xaa Xaa Thr Phe Thr Thr Leu Met Asn
180 185 190

Gly Leu Cys Xaa Glu Gly Arg Xaa Val Glu Ala Val Ala Leu Leu Asp
195 200 205

Arg Met Xaa Glu Asp Gly Leu Gln Pro Xaa Gln Ile Thr Tyr Gly Thr
210 215 220

Ile Val Asp Gly Met Cys Lys Xaa Gly Asp Thr Val Ser Ala Leu Asn
225 230 235 240

Leu Leu Arg Lys Met Glu Glu Xaa Ser His Ile Xaa Pro Asn Val Val
245 250 255

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Ile Tyr Ser Ala Ile Ile Asp Ser Leu Cys Lys Asp Gly Arg His Ser
            260                 265                 270

Asp Ala Gln Asn Leu Phe Thr Glu Met Gln Glu Lys Gly Ile Phe Pro
        275                 280                 285

Asp Leu Phe Thr Tyr Asn Ser Met Ile Val Gly Phe Cys Ser Ser Gly
    290                 295                 300

Arg Trp Ser Asp Ala Glu Gln Leu Leu Gln Glu Met Leu Glu Arg Lys
305                 310                 315                 320

Ile Ser Pro Asp Val Val Thr Tyr Asn Ala Leu Ile Asn Ala Phe Val
                325                 330                 335

Lys Glu Gly Lys Phe Phe Glu Ala Glu Glu Leu Tyr Asp Glu Met Leu
            340                 345                 350

Pro Arg Gly Ile Ile Pro Asn Thr Ile Thr Tyr Ser Ser Met Ile Asp
        355                 360                 365

Gly Phe Cys Lys Gln Asn Arg Leu Asp Ala Ala Glu His Met Phe Tyr
    370                 375                 380

Leu Met Ala Thr Lys Gly Cys Ser Pro Asn Leu Ile Thr Phe Asn Thr
385                 390                 395                 400

Leu Ile Asp Gly Tyr Cys Gly Ala Lys Arg Ile Asp Asp Gly Met Glu
                405                 410                 415

Leu Leu His Glu Met Thr Glu Thr Gly Leu Val Ala Asp Thr Thr Thr
            420                 425                 430

Tyr Asn Thr Leu Ile His Gly Phe Tyr Leu Val Gly Asp Leu Asn Ala
        435                 440                 445

Ala Leu Asp Leu Leu Gln Glu Met Ile Ser Ser Gly Leu Cys Pro Asp
    450                 455                 460

Ile Val Thr Cys Asp Thr Leu Leu Asp Gly Leu Cys Asp Asn Gly Lys
465                 470                 475                 480

Leu Lys Asp Ala Leu Glu Met Phe Lys Val Met Gln Lys Ser Lys Lys
                485                 490                 495

Asp Leu Asp Ala Ser His Pro Phe Asn Gly Val Glu Pro Asp Val Gln
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```
            500                 505                 510

Thr Tyr Asn Ile Leu Ile Ser Gly Leu Ile Asn Glu Gly Lys Phe Leu
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Glu Ala Glu Glu Leu Tyr Glu Glu Met Pro His Arg Gly Ile Val Pro
    530                 535                 540

Asp Thr Ile Thr Tyr Ser Ser Met Ile Asp Gly Leu Cys Lys Gln Ser
545                 550                 555                 560

Arg Leu Asp Glu Ala Thr Gln Met Phe Asp Ser Met Gly Ser Lys Ser
                565                 570                 575

Phe Ser Pro Asn Val Val Thr Phe Thr Thr Leu Ile Asn Gly Tyr Cys
            580                 585                 590

Lys Ala Gly Arg Val Asp Asp Gly Leu Glu Leu Phe Cys Glu Met Gly
        595                 600                 605

Arg Arg Gly Ile Val Ala Asn Ala Ile Thr Tyr Ile Thr Leu Ile Cys
    610                 615                 620

Gly Phe Arg Lys Val Gly Asn Ile Asn Gly Ala Leu Asp Ile Phe Gln
625                 630                 635                 640

Glu Met Ile Ser Ser Gly Val Tyr Pro Asp Thr Ile Thr Ile Arg Asn
                645                 650                 655

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<223> Leu or Phe

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Ser Ala Ala Arg Leu Phe Cys Thr Arg Ser Ile Arg Asp Thr Leu Ala
            20                  25                  30

Lys Ala Ser Gly Glu Ser Cys Glu Ala Gly Phe Gly Gly Glu Ser Leu
        35                  40                  45

Lys Leu Gln Ser Gly Phe His Glu Ile Lys Gly Leu Glu Asp Ala Ile
    50                  55                  60

Asp Leu Phe Ser Asp Met Leu Arg Ser Arg Pro Leu Pro Ser Val Val
65                  70                  75                  80

Asp Phe Cys Lys Leu Met Gly Val Val Val Arg Met Glu Arg Pro Asp
                85                  90                  95

Leu Val Ile Ser Leu Tyr Gln Lys Met Glu Arg Lys Gln Ile Arg Cys
            100                 105                 110

Asp Ile Tyr Ser Phe Asn Ile Leu Ile Lys Cys Phe Cys Ser Cys Ser
        115                 120                 125

Lys Leu Pro Phe Ala Leu Ser Thr Phe Gly Lys Xaa Thr Lys Leu Gly
    130                 135                 140

Leu His Pro Asp Val Val Thr Phe Thr Thr Leu Leu His Gly Leu Cys
145                 150                 155                 160

Val Glu Asp Arg Val Ser Glu Ala Leu Xaa Xaa Phe His Gln Met Phe
                165                 170                 175
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Glu Thr Thr Cys Arg Pro Asn Val Val Thr Phe Thr Thr Leu Met Asn
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Gly Leu Cys Arg Glu Gly Arg Ile Val Glu Ala Val Ala Leu Leu Asp
        195                 200                 205

Arg Met Met Glu Asp Gly Leu Gln Pro Thr Gln Ile Thr Tyr Gly Thr
    210                 215                 220

Ile Val Asp Gly Met Cys Lys Lys Gly Asp Thr Val Ser Ala Leu Asn
225                 230                 235                 240

Leu Leu Arg Lys Met Glu Glu Val Ser His Ile Ile Pro Asn Val Val
                245                 250                 255

Ile Tyr Ser Ala Ile Ile Asp Ser Leu Cys Lys Asp Gly Arg His Ser
            260                 265                 270

Asp Ala Gln Asn Leu Phe Thr Glu Met Gln Glu Lys Gly Ile Phe Pro
        275                 280                 285

Asp Leu Phe Thr Tyr Asn Ser Met Ile Val Gly Phe Cys Ser Ser Gly
    290                 295                 300

Arg Trp Ser Asp Ala Glu Gln Leu Leu Gln Glu Met Leu Glu Arg Lys
305                 310                 315                 320

Ile Ser Pro Asp Val Val Thr Tyr Asn Ala Leu Ile Asn Ala Phe Val
                325                 330                 335

Lys Glu Gly Lys Phe Phe Glu Ala Glu Glu Leu Tyr Asp Glu Met Leu
            340                 345                 350

Pro Arg Gly Ile Ile Pro Asn Thr Ile Thr Tyr Ser Ser Met Ile Asp
        355                 360                 365

Gly Phe Cys Lys Gln Asn Arg Leu Asp Ala Ala Glu His Met Phe Tyr
    370                 375                 380

Leu Met Ala Thr Lys Gly Cys Ser Pro Asn Leu Ile Thr Phe Asn Thr
385                 390                 395                 400

Leu Ile Asp Gly Tyr Cys Gly Ala Lys Arg Ile Asp Asp Gly Met Glu
                405                 410                 415
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Leu Leu His Glu Met Thr Glu Thr Gly Leu Val Ala Asp Thr Thr Thr
            420                 425                 430

Tyr Asn Thr Leu Ile His Gly Phe Tyr Leu Val Gly Asp Leu Asn Ala
        435                 440                 445

Ala Leu Asp Leu Leu Gln Glu Met Ile Ser Ser Gly Leu Cys Pro Asp
    450                 455                 460

Ile Val Thr Cys Asp Thr Leu Leu Asp Gly Leu Cys Asp Asn Gly Lys
465                 470                 475                 480

Leu Lys Asp Ala Leu Glu Met Phe Lys Val Met Gln Lys Ser Lys Lys
                485                 490                 495

Asp Leu Asp Ala Ser His Pro Phe Asn Gly Val Glu Pro Asp Val Gln
            500                 505                 510

Thr Tyr Asn Ile Leu Ile Ser Gly Leu Ile Asn Glu Gly Lys Phe Leu
        515                 520                 525

Glu Ala Glu Glu Leu Tyr Glu Glu Met Pro His Arg Gly Ile Val Pro
    530                 535                 540

Asp Thr Ile Thr Tyr Ser Ser Met Ile Asp Gly Leu Cys Lys Gln Ser
545                 550                 555                 560

Arg Leu Asp Glu Ala Thr Gln Met Phe Asp Ser Met Gly Ser Lys Ser
                565                 570                 575

Phe Ser Pro Asn Val Val Thr Phe Thr Thr Leu Ile Asn Gly Tyr Cys
            580                 585                 590

Lys Ala Gly Arg Val Asp Asp Gly Leu Glu Leu Phe Cys Glu Met Gly
        595                 600                 605

Arg Arg Gly Ile Val Ala Asn Ala Ile Thr Tyr Ile Thr Leu Ile Cys
    610                 615                 620

Gly Phe Arg Lys Val Gly Asn Ile Asn Gly Ala Leu Asp Ile Phe Gln
625                 630                 635                 640

Glu Met Ile Ser Ser Gly Val Tyr Pro Asp Thr Ile Thr Ile Arg Asn
                645                 650                 655
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Met Leu Thr Gly Leu Trp Ser Lys Glu Glu Leu Lys Arg Ala Val Ala
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Met Leu Glu Lys Leu Gln Met Ser Met Asp Leu Ser Phe Gly Gly
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